


IN THE CLAIMS:

1. (currently amended) A carbon media for storage of hydrogen[[,]] comprising micro-domain graphitic materials consisting of at least one of materials selected from the group consisting of carbon nanotubes, fullerenes, carbon micro-cones and flat graphitic carbon sheets.

 characterised in that it wherein said media comprises includes [[a]] micro-domain graphitic materials that have a graphitic stacking direction and a domain size and which have been produced by decomposition of hydrocarbons in a reaction chamber connected to a plasma generator in which the hydrocarbons are subjected to a first decomposition step and said plasma generator includes a plasma arc zone, where the hydrocarbon is hydrocarbons are fed into the decomposition chamber in the vicinity of the plasma arc zone and mixed with the plasma gas arc, and where the plasma arc zone is operated with adjustable process parameters and the process parameters are adjusted in such a manner that the hydrocarbons do not reach pyrolysis temperature and are only partially decomposed to form polycyclic aromatic hydrocarbons (PAHs),
-that the hydrocarbons in the form of PAHs are, after the first decomposition step, mixed with a plasma gas arc and reintroduced as a part of a plasma gas into a plasma arc zone in a decomposition chamber and subjected to a second decomposition step, where the ~~intense~~ heat in the plasma arc zone causes the PAHs to be converted into the micro-domain graphitic materials,
-that the domain size is smaller than 5 mm in diameter or length parallel to a graphitic stacking direction and having a thickness of less than 100 nm in the graphitic stacking direction.

2. cancelled

3. cancelled

4. (currently amended) A media according to claim [[1 -3]] 1, ~~characterised in that~~ wherein the media contains micro-domain graphitic materials in the range

from 0 to above 90wt%.

5. (currently amended) A media according to claim 4, ~~characterised in that~~
wherein the media contains more than 90wt% micro- domain graphitic materials.

6. (currently amended) A media according to any one of ~~claims 1-5~~ claim 1,
~~characterised in that~~ wherein the media results from dehydrogenation of heavy
fuel oil into micro-domain graphitic materials.

WP 7. (currently amended) A carbon media for storage of hydrogen comprising
micro-domain graphitic materials, ~~characterised in that~~ wherein [[it]] said media
contains open carbon micro-cones with total disclination degrees of at least 60°
and/or 120° , corresponding to cone angles of respectively at least 112.9°
and/or 83.6° .

Claims 8. -11. cancelled

ax 12. (new claim) A carbon media for storage of hydrogen comprising micro-
domain graphitic materials, wherein the media contains open carbon micro-
cones.
